1. **Basic Sine and Cosine Curves**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Domain | Range | Even/Odd | Period | Zeros |
| Sine |  |  |  |  |  |
| Cosine |  |  |  |  |  |

To sketch the graphs, plot 5 key points in 1 period. The 5 key points are:

* Intercepts (x and y)
* Maximum points
* Minimum points

**Ex. 1:** Sketch on . Plot 5 points in .

Now we are going to learn how to graph any sine or cosine function in this form:

1. **“a” ⇒ AMPLITUDE**

Definition: the amplitude of and is the largest value of and is \_\_\_\_\_\_\_.

**Ex. 2:** On the same coordinate axes, sketch:

1. **Find the period with “b”**

Let be a positive . The period of and is .

Note: Because has a period of then has a period of ⇒

**Ex. 3:** Sketch . Amp = \_\_\_\_\_\_\_

Period = \_\_\_\_\_\_\_\_

Now divide into 4 equal parts.

1. **“c” ⇒ Horizontal Shift**

To find the horizontal shift let and .

**Ex. 4:** Sketch Amp = \_\_\_\_\_\_\_ Period = \_\_\_\_\_\_\_\_

Now divide into 4 equal parts. Find the average of . Continue 2 more times.

1. **“d” ⇒ Vertical Shift**

**Ex. 5:** Sketch Amp = \_\_\_\_\_\_\_ Period = \_\_\_\_\_\_\_

Now divide into 4 equal parts. Shift graph up 2.